DOCUMENT RESUME

ED 200 827 CE 028 828

AUTHOR Thomas, Edward L.; And Others
TITLE User's Manual. Vocational Education Readiness Test (VERT). Revised Edition.
INSTITUTION Mississippi Research and Curriculum Unit for Vocational and Technical Education, State College.; Mississippi State Dept. of Education, Jackson. Div. of Vocational and Technical Education.
PUB DATE 81
NOTE 31p.; For related documents see CE 028 829-836 and ED 159 455.

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Ability Identification; *Aptitude Tests; Competency Based Education; Disabilities; Guides; Minimum Competencies; Performance; Psychomotor Skills; Secondary Education; Skill Analysis; Skill Development; Statistics; *Testing; Test Interpretation; *Vocational Aptitude; *Vocational Education
IDENTIFIERS *Vocational Education Readiness Test

ABSTRACT

This user's manual provides information suggesting various ways in which educational personnel may wish to utilize the eight modules included in the Vocational Education Readiness Test (VERT). The introductory section presents questions which can be used by school personnel to determine whether or not VERT will be useful in their school system. Section 1 of the guide describes the process used to develop the test, including procedures for skill identification, test review, and pilot testing. Section 2 of the guide focuses on test administration and scoring procedures. Summary statistics for regular and handicapped students who have taken the test are appended. (LRA)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED200827

Vocational Education
Readiness Test
(VERT)

User's Manual

Edward L. Thomas, Ed.D.
Ronald J. Brownlee, Ed.D
James F. Shill, Ph.D
Charlene Callaway, M.Ed.

Revised By:
Edward L. Thomas

Published by the:

Division of Vocational-Technical Education
Mississippi State Department of Education
Jackson, Mississippi

and

Research and Curriculum Unit
for Vocational-Technical Education
College of Education
Mississippi State University
Mississippi State, Mississippi

CE 028 828

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

1981

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

J. Shill

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Original Manual

Kathy Stransky - Artist/Illustrator
Patricia Bloch - Editor
Patricia Bloch - Composer

Revised Edition

Willa V. Crousen - Editor
Bob Rowell - Artist/Illustrator
Susan Daugherty - Composer

Direct Inquiries to:
Research and Curriculum Unit
for
Vocational-Technical Education
College of Education
Drawer DX
Mississippi State, Mississippi 39762
Phone: (601) 325-2510

Mississippi State University does not discriminate on the basis or race, color, religion, national origin, sex, age, or handicap.

FOREWORD

The original VERT manual was a product of a research project entitled "Development and Testing of Criteria for the Identification and Selection of Mentally Handicapped Students for Vocational Programs." Support for the original manual was provided by the Bureau of Occupational and Adult Education, United States Office of Education (Vocational Education), under Grant Number G007604315. The original manual was replaced by the revised edition in April, 1981. Funding for the revised edition was provided by the Research and Curriuclum Unit, Mississippi State University.

The revised Vocational Education Readiness Test (VERT) is composed of a User's Manual and eight modules as follows:

Module #1 - Auto Mechanics

Module #2 - Basic Wiring

Module #3 - Carpentry

Module #4 - Home Economics (Clothing)

Module #5 - Masonry

Module #6 - Plumbing

Module #7 - Quantity Foods

Module #8 - Welding

Each module contains a section on manipulative skills, trade vocabulary, tool identification, trade computational skills, and measuring skills depicted as minimum competencies students should possess prior to entrance into regular vocational programs.

The User's Manual provides information suggesting various ways in which educational personnel may wish to utilize the eight modules.

Appreciation is extended to the project's steering committee (Appendix A), the Divisions of Vocational-Technical Education and Vocational Rehabilitation and the office of Special Education of the State Department of Education. Others contributing to the completion of the research project included the Ackerman, Canton, Clarksdale, Columbus, Eupora, Forrest County, Greenwood, Jackson, Louisville, Macon, New Albany, Oktibbeha County, and Starkville School districts. In addition, Betty Barnhill, Assistant Supervisor of Home Economics (SDVTE), and personnel in the Pascagoula Vocational Complex are to be commended for their significant contributions.

Edward L. Thomas

Table of Contents

	page
Foreword	iii
Introduction	1
Test Development	3
Steering Committee	3
Identification of Needed Skills	3
Review of Test	4
Pilot Testing	4
Exemplary Project	4
Summary Statistics	4
Administration and Scoring	5
Testing Site Consideration	5
Time Consideration	5
Manipulative Skills Testing	8
Vocabulary Testing	8
Tool Identification Testing	9
Computational Skills Testing	9
Conclusion	10
Appendices	11
A: Project Steering Committee	13
B: Tables	17

LIST OF TABLES

PAGE

Table 1: Measurement Skills of Regular Students in Auto Mechanics 19

Table 2: Measurement Skills of Handicapped Students in Auto Mechanics 19

Table 3: Task Completion Time (Seconds) for Regular and Handicapped Students in Auto mechanics 20

Table 4: Measurement Skills of Regular Students in Basic Wiring 21

Table 5: Measurement Skills of Handicapped Students in Basic Wiring 21

Table 6: Task Completion Time (Seconds) for Regular and Handicapped Students in Basic Wiring 22

Table 7: Measurement Skills of Regular Students in Carpentry 23

Table 8: Measurement Skills of Handicapped Students in Carpentry 23

Table 9: Task Completion Time (Seconds) for Regular and Handicapped Students in Carpentry 24

Table 10: Measurement Skills of Regular Students in Clothing 25

Table 11: Measurement Skills of Handicapped Students in Clothing 25

Table 12: Task Completion Time (Seconds) for Regular and Handicapped Students in Clothing 26

Table 13. Measurement Skills of Regular Students in Masonry 27

Table 14: Measurement Skills of Handicapped Students in Masonry 27

Table 15: Task Completion Time (Seconds) for Regular and Handicapped Students in Masonry 28

Table 16: Measurement Skills of Regular Students in Plumbing 29

Table 17: Measurement Skills of Handicapped Students in Plumbing 29

Table 18: Task Completion Time (Seconds) for Regular and Handicapped Students in Plumbing 30

LIST OF FIGURES

PAGE

Figure : Flowchart for EMRs 7

INTRODUCTION

There may be considerations on your part concerning whether or not the VERT will be useful in your particular school system. Therefore, you may wish to determine its utility by answering the following questions without pretense:

1. Do you currently operate or intend to implement a prevocational program for handicapped students?
2. Do you intend to write or are currently writing IEPs with true vocational dimensions for use with students in prevocational programs?
3. Do you have or have you had problems convincing parents, administrators, etc., that you acted in the students' best interests when you did or did not place them directly into a regular type vocational program?
4. Are you willing to provide inservice training to your special education and prevocational teachers concerning prerequisite skills needed for success in each of your regular vocational programs?
5. Are you willing to provide your vocational instructors with inservice training concerning the characteristics of and how to best work with students who have a broad array of handicaps?
6. Are you willing to use a model (as the VERT) to custom build your prevocational evaluation system for approximately $1,000 rather than purchasing a commercial variety?
7. Once you have placed a handicapped student into a regular vocational program are you willing to check on his/her progress on a regular basis and make needed changes in the prevocational program?
8. Once you place a handicapped student "on the job" will you be willing to check her/his progress on a regular basis and change any part of the prevocational and/or vocational program which is not proving to be beneficial to the student?
9. Will you be willing to update, change, etc., your VERT on an annual basis or as needed to compensate for technological changes in the world of work?

If your answers to the above questions are generally "yes," then the VERT may prove to be a very effective and inexpensive tool for your prevocational program(s). Likewise, should your answers also be "yes" to the following questions, you definitely **do not** need the VERT.

1. Are you looking for a "quickie" screening device to keep handicapped students out of your regular vocational programs?
2. Do you envision P.L. 94-142 as a passing fad and you need something in the interim to satisfy people until "this thing passes?"

TEST DEVELOPMENT

The original VERT was developed over a two year period (1976-78) to provide public school personnel with standardized procedures for assessing the vocational potential of mentally handicapped students at the secondary level. The tests were also designed to facilitate prescribing corrective/remedial exercises for inclusion in IEPs. The revised VERT still contains the above features; however, it has been expanded to include manipulative skills for eight trade areas instead of six and it assesses student's knowledge of trade area vocabulary, tool identification skills, trade computational skills and measuring skills. Trade areas covered by the VERT currently include auto mechanics, basic wiring, carpentry, home economics (clothing), masonry, plumbing, quantity foods, and welding.

The VERT was not developed as a replacement for the numerous commercially-developed work samples, i.e., the JEVS, TALENT, VIEWS, HESTER, McCARRON-DIAL, etc. The above tests were designed to be administered to handicapped adults to indicate the job categories listed in the Directory of Occupational Titles for which an individual is best suited. These work samples appear to do a superb job and are widely distributed and used by Vocational Rehabilitation and other social agencies. Additionally, these work samples were not designed to aid prevocational instructors and/or special education personnel in determining whether or not an EMR has the potential for vocational success in one or more of the regular secondary vocational education trade areas.

Steering Committee

A Steering Committee was utilized to assist in planning for the project. (See Appendix A.) The committee was composed of individuals from Goodwill Industries, public schools, State Department of Education (Vocational Rehabilitation, Special Education, Vocational-Technical Education) and the Research and Curriculum Unit at Mississippi State University. Subsequent to the initial meeting, the committee met every three to four months to review the progress being made by project staff members.

Utilizing recommendations made by the project steering committee, the research staff sought answers to the following questions:

1. What skills were needed by handicapped students as "prerequisites" to success in vocational programs?
2. How can we identify and measure these skills?
3. What criteria will be used to determine minimum acceptable levels of skills?
4. At what stage should handicapped students receive vocational evaluation?
5. How can we incorporate our findings into the on-going prevocational programs to ensure maximum benefits for handicapped students?

Identification of Needed Skills

The most common types of vocational programs in the State of Mississippi were determined in order to provide the basis for test development. Staff members then visited with vocational trade instructors in randomly selected programs to determine those skills perceived by instructors to be important prior to entrance into a program. Efforts were made to correlate the identified prerequisite skills with curriculum guides (content) for each area.

Subsequent to the development of a rough draft of a manipulative skills test, suggestions were sought concerning any additional skills which should be included in the VERT. In essence, trade area instructors identified trade vocabulary, tool identification skills, trade computational skills, and measuring skills as needed additions.

Trade vocabulary was determined by a review of lesson plans and shop literature. Terminology identified by trade area instructors as "pertinent" was listed and operationally defined. Tool listings for tool identification were obtained from shop inventories for the various trade areas. Each tool was sketched by an artist/illustrator. Trade area instructors were requested to prepare samples of computational skills most needed in their shops. These generally consisted of simple addition, subtraction, multiplication, and division problems with some involving decimals and fractions. Reading-type problems were listed as "difficult" for many students. Measuring skill problems were identified for both English and metric-type measurements. All trade area instructors felt that students should be able to measure to the nearest ½, ¼, or ⅛ inch and should be able to add, subtract, multiply, or divide fractions commonly encountered in linear measurements.

Review of Test

Upon developing an interim draft of the tests for each trade area, the tests were submitted to a panel of experts in that specific area consisting of teacher educators in special education, prevocational personnel, vocational trade area instructors and special education personnel from local schools. Panel members, after having had an opportunity to review the tests on an individual basis, met as a group at Mississippi State University for review purposes. Each panel member for each area was selected for his/her expertise in a particular trade area. The panels of experts were asked to review the tests for clarity, design and format, and use with both EMR and "regular" students. All appropriate recommendations provided by the panels of experts were incorporated.

Pilot Testing

A total of 64 students were selected from six different school systems to serve in the pilot study for the VERT. Thirty-two students were EMRs and 32 students were "regular"students (I.Q. 90+) enrolled in the 10th grade. Several of the EMRs had received limited industrial arts training; however, none of the "regular" students had completed an industrial arts course. The project staff utilized the pilot study to facilitate the establishment of a standardized testing procedure for all tasks in the VERT. In addition, efforts were made to print all testing procedures in detail to ensure that procedures used by one evaluator would likewise be used by other evaluators.

Exemplary Project

An RFP for determining transportability of the VERT was prepared and mailed to some 100 school districts in Mississippi. The project was awarded to the Pascagoula Municipal Separate School District. The school system, using specifications, etc., in the VERT, assembled the testing modules for approximately $500 and evaluated some 30 handicapped and 30 "regular" students using only the manipulative skills section of the test. Recommendations were made concerning several changes in preliminary exercises performed by evaluators. Due to a very wide range in student performance levels on the tasks, decisions were made to utilize criterion-reference measures rather than norms to determine acceptable or unacceptable performance for each manipulative skills task.

Summary Statistics

The establishment of criterion-reference measures (time completion) for each task in each module was the final endeavor in the development of the original VERT. The word "criterion", as used in this manual, refers to a domain of manipulative skills. Each examinee was tested against a well-defined domain of manipulative behaviors (module objectives). VERT objectives were then organized into non-overlapping tasks with regard to each domain of behavior.

The initial standardization group was comprised of "regular" 10th grade students. In addition, 10th and 11th grade EMR students were tested. No students were tested outside Mississippi due to time and monetary limitations. However, to ensure as much representativeness as possible for this group, students were tested from all areas of the State of Mississippi to include urban, suburban, and rural school systems. "Regular" students (N=115) were systamatically drawn from 10th grade class rolls and cluster sampling techniques were employed in the selected school districts to determine EMR student examinees (N=108).

ADMINISTRATION AND SCORING

Research and Curriculum Unit personnel will provide a three-day (24 clock hours) training period on an annual basis for local school personnel in Mississippi. The training sessions will be offered on a "no cost" basis by the R/CU; however, local school systems will provide for transportation, food, and lodging for their participants.

A copy of the User's Manual and the eight VERT modules will be provided for each person completing the 24 hours of training. Each participant will be instructed concerning how to construct the VERT by referring to specifications and to tool and material lists included in each of the eight modules. All materials can be purchased in local hardware stores, etc.

Testing Site Considerations

The evaluator should carefully read and study a testing module in conjunction with the scoring results sheet prior to testing a student. Each module contains objectives, tools and equipment needed, preliminary exercises, special instructions, and student performance objectives. The evaluator must observe and follow instructions in order to maintain consistency in testing and to assist in the establishment of item validity.

To administer a testing module of the VERT, the following conditions should exist:

1. Room, well lighted and free from outside disturbances;
2. Room, divided into eight areas - one area for each module;
3. Work table(s) approximately 30" × 30" × 60" for each module;
4. Protective covers for table tops; and
5. At least one hour of uninterrupted time for the manipulative skills section of each module.

Time Considerations

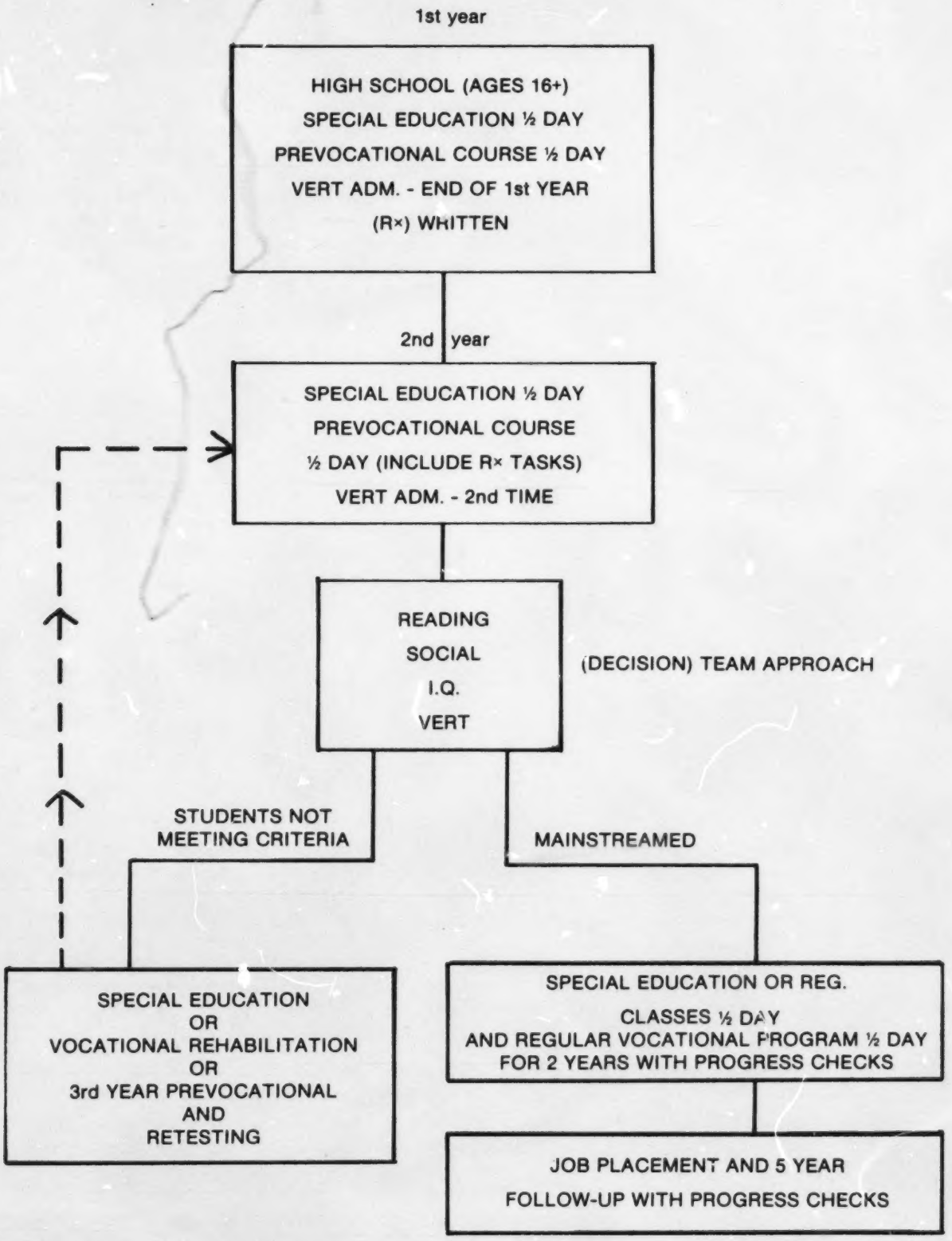
Selecting an appropriate time (age and grade) for administering the VERT involved a detailed study of prevocational program offerings for EMRs in Mississippi. Generally, students identified as EMRs by a Regional Screening Team attend special education classes for one-half day and prevocational programs for one-half day. Several instances were noted where EMRs were mainstreamed into regular academic classes; however, few EMRs were observed in the regular vocational programs. Instead, EMRs usually worked for private enterprise, etc., on a part-time basis. Upon completion of two years of prevocational education and special education at the secondary level, EMRs who were considered unemployable by the private sector were referred to sheltered workshops operated by Vocational Rehabilitation and other social agencies.

The VERT was developed as an instrument which would be administered to the same student on two different occasions. (See Figure 1.) The first test determines a student's vocational potential as it spotlights specific strengths and weaknesses of the student. This test is administered at the end of the first year of prevocational work. Data from the first test is used in the development of IEPs for use in second year prevocational classes. Such exercises may necessarily continue for one full school year or may be somewhat shorter, depending upon the student's progress. At the end of the second year of prevocational work, the student is tested a second time. Scores on the first test are compared with criterion-reference scores established by a "team of experts." Performance on the second VERT should be used to facilitate decision-making concerning whether or not the student meets minimum entry level requirements for a particular vocational program.

The VERT was not intended for use in isolation of other instruments, data, etc. Information such as student's reading level, I.Q., and social skills should be available to a screening team prior to deciding whether or not a student has potential for success in a regular vocational course. Using this approach, EMRs selected for mainstreaming into the regular vocational programs should be able to perform most skill tasks with a minimum of adjustments. Those students not selected should receive counseling and be referred to social agencies, etc., which provide services for adults. A five-year follow-up is suggested so that any changes needed can be incorporated readily into either the prevocational or regular vocational programs.

FIGURE I

SELECTION OF EMRs FOR REGULAR VOCATIONAL PROGRAMS



Manipulative Skills Testing

The evaluator, while performing the preliminary task, should ask the student to stand to her/his left side. Upon completion of the preliminary task, the evaluator should place all tools, etc., on a 24" x 24" starting mat which should be mounted on top of the work bench. At this point, the evaluator should discuss the task with the student; however, the student should not be permitted to practice using the tools. The student, while standing within 24" of the tools and having been informed to work as fast as he/she can, is then given the command to start the task. At this command, the evaluator also starts the stopwatch. The evaluator should closely observe the student and record in the comment section of the score sheet any manipulative problems which may warrant correction. Such problems generally involve the student's inability to hold certain objects, a tendency to reverse the directionality of tools, or simply problems which occurred when a student failed to follow the evaluator's oral directions which were given in the preliminary task.

Upon completion of the assigned and timed task the student is not required to replace the tools on the starting mat as a signal for the evaluator to stop the watch. Instead, the evaluator stops the watch immediately when she/he observes that the task has been completed. For example, in the carpentry test, the student is instructed to drive four nails (8d) into the premarked wood. The evaluator places the hammer and nails on the starting pad, gives the command to start, and starts the watch. When the student has driven the last nail, the evaluator stops the watch. The evaluator does not wait until the student places the hammer back on the starting mat. The evaluator records student's time on the score sheet in seconds for each task. An N/C is placed in the time slot for each task which the student fails to complete.

The project staff found it desirable to stop the watch on a student who consumed as much time on a task as normally required. For example, if the cut-off time for a task is 125 seconds, when a student consumes 125 seconds and has not completed the task the evaluator stops the clock, inserts N/C in the time slot and writes the problem in the comments section. A prescription for corrective exercises would be written for this task. Students taking tests which involve body positioning (auto mechanics, masonry, welding, etc.) are permitted to assume the correct body position prior to being given the command to start. See Appendix B for score sheets containing group means (time) and standard deviations for EMRs and regular students for each manipulative skills task.

Vocabulary Testing

Specific levels of performance concerning students' knowledge of trade vocabulary will differ with each vocational center. As a result, trade area instructors in Mississippi suggested the development of a "working trade vocabulary" for each vocational class. They also suggested that all students thoroughly master this terminology prior to class entrance. Vocational personnel in each school system should review the vocabulary listing contained in the modules and add or delete terminology to suit their local needs as trade area vocabularies in each of the modules represent, at best, a minimum working vocabulary common to vocational classes in Mississippi.

Once a minimum level trade vocabulary has been established, students may be tested using either written or oral methods. In either case, acceptable performance should depend upon recognition, definition, and utilization of each term as it relates to the vocational class the student wishes to enter.

Recognition and definition skills may be taught by memorizing from flash cards, 35 mm slides, etc. However, testing should involve not only recognition and definition skills but should include familiarity with the tangible item. For example, a student may use a flash card

for building trades to learn the term "decking." In actual testing of the student's trade vocabulary skills, a student would define "decking" either orally or written and take a flash card and attach it to the "decking" of an unfinished building under construction in the building trades shop.

Tool Identification Testing

Tools selected for inclusion in the VERT were those commonly found in tool inventories in various vocational centers. Thus, local educational personnel should exclude tools not commonly found in their inventory lists while developing local plans for teaching tool identification and utilization skills. Suggested teaching methods include: using 8" × 10" black and white photographs of tools and their shop names; using 35 mm color slides of tools and having students identify tools verbally; placing tools on tool racks and having students place the proper name tag by each tool; and, having students tell how to use a tool in a work-type situation.

Computational Skills Testing

Vocational instructors interviewed felt that a large number of their students were deficient in basic mathematics skills which were necessary for success in vocational classes. Problem areas were not limited to decimals, fractions, and reading problems, but included simple problems involving addition, subtraction, multiplication, and division skills.

Testing exercises should include paper and pencil type tests and should also utilize actual class-type problems involving hands-on activities when possible. For example, students wanting to enter masonry may be asked to count by hand the number of bricks in a stack (cube) seven bricks deep, eight bricks wide, and ten bricks high. The student would then be instructed concerning how to figure the bricks using mathematics.

The stacks of brick could be altered for additional practice and testing exercises would involve computing the number of bricks in stacks varying in size and number. Time constraints may be used to discourage counting bricks individually.

Measuring Skills Testing

Students planning to enter the regular vocational programs should be able to measure and read a ruler accurately to 1/8 inch, preferably to 1/16 inch. Students should also be able to measure two or more pieces of stock (wood, cloth, etc.) and add, subtract, multiply or divide the measurments. Thus, prevocational personnel should include measuring skills as a major part of the prevocational program.

Both "short" and "long" linear measurement skills should be developed. The development of short (less than 12 inches) distance measuring skills may be facilitated by referring to a publication entitled **Improving Measuring Skills Revised Edition** by Roy S. Hinrichs, available through the Research and Curriculum Unit, Mississippi State University. This publication contains measuring exercises in both English and metrics. English measuring exercises using simple boats, airplanes, etc., are divided into practical units with problems involving measuring to the nearest 1/2, 1/4, 1/8, and 1/16 inch. Metric measuring exercises include centimeter and millimeter-type problems. Twelve inch plastic rulers with English and metric graduations are excellent for the short length measuring exercises.

Teaching students to measure distances longer than twelve inches can be accomplished rather easily using wooden sticks, etc., of various lengths. Simply number each stick (approximately 200) using pressure sensitive labels and have students place their measurement findings on answer sheets. The same materials can be used for testing by simply altering the numbers. Exercises involving measuring skill development for lengths over six feet may be practiced outside the classroom, using objects, etc., which have been premeasured and numbered by the prevocational instructor. These numbers can also be altered for testing purposes. Measuring tools such as the Stanley Power Lock tape measure (10 ft. +) should be considered for measuring distances of more than twelve inches.

CONCLUSION

The VERT should prove useful to educational personnel confronted with such tasks as:

* Conducting prevocational evaluations of handicapped and other students;
* Planning, developing, and implementing prevocational courses;
* Determining whether or not to place handicapped and other students into regular programs; and
* Establishing minimum competency levels to be required of all students for entrance into regular vocational programs.

Your school may elect to use the VERT or some other system as a model for custom building your prevocational program. Should this be the case, keep in mind that American business finds itself increasingly hard pressed to remain competitive with other nations, expecially in terms of production. Thus, the success or failure of your students in regular vocational programs and the world-of-work will depend largely upon their degree of on-the-job **motivation** and their **ability** to perform. Hopefully, utilization of the VERT will result in your prevocational programs being viewed not as student playgrounds but as serious programs which are designed to match and prepare students for vocational programs in which they have the most potential for success.

APPENDICES

APPENDIX A

PROJECT STEERING COMMITTEE

Robert T. Richards, Counselor/Evaluator for Goodwill Industries, Jackson, Mississippi

Russell B. Walton, Supervisor of the Deaf and Hard of Hearing and Special Education, Jackson, Mississippi

Walter Moore, Special Education Division of the State Department of Education, Jackson, Mississippi

W. T. Taylor, Supervisor of Disadvantaged and Handicapped Students for the Vocational-Technical Division, Jackson, Mississippi

Judy McLarty, Assistant Supervisor for Disadvantaged and Handicapped, Jackson, Mississippi

Shirley Darby, Prevocational Orientation Teacher, Batesville, Mississippi

Jesse Franklin, Prevocational Orientation Teacher, Columbia, Mississippi

Wanda Lambuth, Vocational Counselor, McComb, Mississippi

James F. Shill, Director of the Research and Curriculum Unit, Mississippi State University

Edward L. Thomas, R. and D. Coordinator, Mississippi State University

Louie E. Kemp, Field Services Coordinator, Mississippi State University

Charlene Callaway, Data Analyst for the Research and Curriculum Unit, Mississippi State University

APPENDIX B

TABLE I

MEASUREMENT SKILLS - AUTO MECHANICS

REGULAR STUDENTS

N = 15

Task 1 (INCH)				Task 2 (HALF-INCH)				Task 3 (QUARTER-INCH)				Task 4 (EIGHTH-INCH)			
C*	%	I*	%	C	%	I	%	C	%	I	%	C	%	I	%
15	100	0	0	15	100	0	0	14	93	1	7	11	74	4	26

C* - Correct
I* - Incorrect

TABLE 2

MEASUREMENT SKILLS - AUTO MECHANICS

HANDICAPPED STUDENTS

N = 15

Task 1 (INCH)				Task 2 (HALF-INCH)				Task 3 (QUARTER-INCH)				Task 4 (EIGHTH-INCH)			
C*	%	I*	%	C	%	I	%	C	%	I	%	C	%	I	%
8	53	7	47	6	40	9	60	4	27	11	73	5	33	10	67

C* - Correct
I* - Incorrect

TABLE 3

TASK COMPLETION (SECONDS) - AUTO MECHANICS

REGULAR AND HANDICAPPED STUDENTS

REGULAR STUDENTS N = 15
HANDICAPPED STUDENTS N = 15

Task	Regular Mean	Regular SD	Handicapped Mean	Handicapped SD
5	200	43	245	67
6	156	33	173	43
7	18	4	31	16
8	1063	476	1446	510
9	391	149	397	223
10	381	129	387	211
11	331	113	381	270
12	148	40	179	64
13	281	60	320	355
14	206	41	234	72

The above scores are for demonstration purposes only. Your scores will vary.

TABLE 4

MEASUREMENT SKILLS - BASIC WIRING

REGULAR STUDENTS

N = 25

Task 1 (INCH)				Task 2 (HALF-INCH)				Task 3 (QUARTER-INCH)				Task 4 (EIGHTH-INCH)			
C*	%	I*	%	C	%	I	%	C	%	I	%	C	%	I	%
24	96	1	4	24	96	1	4	24	96	1	4	23	92	2	8

*C - Correct
*I - Incorrect

TABLE 5

MEASUREMENT SKILLS - BASIC WIRING

HANDICAPPED STUDENTS

N = 25

Task 1 (INCH)				Task 2 (HALF-INCH)				Task 3 (QUARTER-INCH)				Task 4 (EIGHTH-INCH)			
C*	%	I*	%	C	%	I	%	C	%	I	%	C	%	I	%
15	60	10	40	5	20	20	80	2	8	23	92	2	8	23	92

*C - Correct
*I - Incorrect

TABLE 6

TASK COMPLETION (SECONDS) - BASIC WIRING

REGULAR AND HANDICAPPED STUDENTS

REGULAR STUDENTS N = 25
HANDICAPPED STUDENTS N = 25

Task	Regular Mean	Regular SD	Handicapped Mean	Handicapped SD
5	11	6	57	197
6	184	397	220	363
7	36	14	90	194
8	142	186	182	253
9	96	35	120	54
10	180	252	194	250
11	67	27	141	260
12	287	110	378	215
13	205	94	314	232
14	162	83	219	176

The above scores are for demonstration purposes only. Your scores will vary.

TABLE 7

MEASUREMENT SKILLS - CARPENTRY

REGULAR STUDENTS

N = 15

Task 1 (INCH)				Task 2 (HALF-INCH)				Task 3 (QUARTER-INCH)				Task 4 (EIGHTH-INCH)			
C*	%	I*	%	C	%	I	%	C	%	I	%	C	%	I	%
15	100	0	0	15	100	0	0	15	100	0	0	15	100	0	0

*C - Correct
*I - Incorrect

TABLE 8

MEASUREMENT SKILLS - CARPENTRY

HANDICAPPED STUDENTS

N = 15

Task 1 (INCH)				Task 2 (HALF-INCH)				Task 3 (QUARTER-INCH)				Task 4 (EIGHTH-INCH)			
C*	%	I*	%	C	%	I	%	C	%	I	%	C	%	I	%
15	100	0	0	15	100	0	0	15	100	0	0	14	93	1	7

*C - Correct
*I - Incorrect

TABLE 9

TASK COMPLETION (SECONDS) - CARPENTRY

REGULAR AND HANDICAPPED STUDENTS

REGULAR STUDENTS N = 15
HANDICAPPED STUDENTS N = 15

Task	Regular Mean	Regular SD	Handicapped Mean	Handicapped SD
5	18	7	28	18
6	44	10	50	15
7	60	31	83	39
8	92	44	125	69
9	96	63	116	35
10	125	48	168	60
11	180	68	244	80
12	97	37	171	70
13	77	26	127	91
14	186	87	272	111
15	225	57	221	60
16	59	36	62	24
17	21	11	26	17
18	49	18	66	21
19	199	102	260	83

The above scores are for demonstration purposes only. Your scores will vary.

TABLE 10

MEASUREMENT SKILLS - CLOTHING

REGULAR STUDENTS

N = 15

Task 1 (INCH)				Task 2 (HALF-INCH)				Task 3 (QUARTER-INCH)				Task 4 (EIGHTH-INCH)			
C*	%	I*	%	C	%	I	%	C	%	I	%	C	%	I	%
15	100	0	0	15	100	0	0	15	100	0	0	15	100	0	0

*C - Correct
*I - Incorrect

TABLE 11

MEASUREMENT SKILLS - CLOTHING

HANDICAPPED STUDENTS

N = 15

Task 1 (INCH)				Task 2 (HALF-INCH)				Task 3 (QUARTER-INCH)				Task 4 (EIGHTH-INCH)			
C*	%	I*	%	C	%	I	%	C	%	I	%	C	%	I	%
15	100	0	0	4	26	11	74	2	13	13	87	3	20	12	80

*C - Correct
*I - Incorrect

TABLE 12

TASK COMPLETION (SECONDS) - CLOTHING

REGULAR AND HANDICAPPED STUDENTS

REGULAR STUDENTS N = 27
HANDICAPPED STUDENTS N = 23

Task	Regular Mean	SD	Handicapped Mean	SD
5	55	7	90	42
6	51	10	93	26
7	132	30	255	97
8	101	47	172	106
9	185	55	256	57

The above scores are for demonstration purposes only. Your scores will vary.

TABLE 13

MEASUREMENT SKILLS - MASONRY

REGULAR STUDENTS

N = 18

Task 1 (INCH)				Task 2 (HALF-INCH)				Task 3 (QUARTER-INCH)				Task 4 (EIGHTH-INCH)			
C*	%	I*	%	C	%	I	%	C	%	I	%	C	%	I	%
18	100	0	0	18	100	0	0	17	94	1	6	12	67	6	33

*C - Correct
*I - Incorrect

TABLE 14

MEASUREMENT SKILLS - MASONRY

HANDICAPPED STUDENTS

N = 15

Task 1 (INCH)				Task 2 (HALF-INCH)				Task 3 (QUARTER-INCH)				Task 4 (EIGHTH-INCH)			
C*	%	I*	%	C	%	I	%	C	%	I	%	C	%	I	%
15	100	0	100	3	20	12	80	0	0	15	100	0	0	15	100

*C - Correct
*I - Incorrect

TABLE 15

TASK COMPLETION (SECONDS) - MASONRY

REGULAR AND HANDICAPPED STUDENTS

REGULAR STUDENTS N = 18
HANDICAPPED STUDENTS N = 15

	Regular		Handicapped	
Task	Mean	SD	Mean	SD
5	95	11	118	20
6	46	9	56	14
7	105	21	139	45
8	172	33	296	227
9	209	48	323	227
10	118	25	121	45
11	129	30	202	252

The above scores are for demonstration purposes only. Your scores will vary

TABLE 16

MEASUREMENT SKILLS - PLUMBING

REGULAR STUDENTS

N = 15

Task 1 (INCH)				Task 2 (HALF-INCH)				Task 3 (QUARTER-INCH)				Task 4 (EIGHTH-INCH)			
C*	%	I*	%	C	%	I	%	C	%	I	%	C	%	I	%
14	93	1	7	14	93	1	7	12	80	3	20	12	80	3	20

C* - Correct
I* - Incorrect

TABLE 17

MEASUREMENT SKILLS - PLUMBING

HANDICAPPED STUDENTS

N = 15

Task 1 (INCH)				Task 2 (HALF-INCH)				Task 3 (QUARTER-INCH)				Task 4 (EIGHTH-INCH)			
C*	%	I*	%	C	%	I	%	C	%	I	%	C	%	I	%
8	53	7	47	7	47	8	53	1	7	14	93	3	20	12	80

C* - Correct
I* - Incorrect

TABLE 18

TASK COMPLETION (SECONDS) - PLUMBING

REGULAR AND HANDICAPPED STUDENTS

REGULAR STUDENTS N = 15
HANDICAPPED STUDENTS N = 15

	Regular		Handicapped	
Task	Mean	SD	Mean	SD
5	53	25	64	18
6	66	18	74	18
7	101	53	436	379
8	339	291	649	352
9	2396	3942	4321	4804
10	330	309	586	375
11	320	299	550	264
12	219	255	441	366
13	106	27	146	49

The above scores are for demonstration purposes only. Your scores will vary.

Note: Tables 19-24 (Quantity Foods and Welding) are not included in this User's Manual as protocol was not adhered to in the collection of standardization data.